

J.B. INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING



COURSE FILE
OF
COMPUTER GRAPHICS

IV B.TECH

I SEMESTER

ACADEMIC YEAR

2015-16

M NAVEEN BABU
ASSISTANT PROFESSOR



COURSE PLAN

2015-16


Regulation: R12

FACULTY DETAILS:

Name of the Faculty:: M.NAVEEN BABU
Designation: Assistant professor
Department:: CSE

COURSE DETAILS

Name Of The Programme:: B.Tech Batch:: 2012
Designation:: IV B.Tech
Year Semester :I
Department:: CSE
Title of The Subject Computer Graphics Subject Code 56054
No of Students 90

	COURSE PLAN	2015-16
		Regulation: R12

FACULTY DETAILS:

Name of the Faculty:: M.NAVEEN BABU
 Designation: Assistant professor
 Department:: CSE

1. TARGET

- a) Percentage Pass 100%
- b) Percentage I class:85%

2. COURSE PLAN

Coverage of Units by conceptualizing and solving numerical problems and by giving assignments

(Please write how you intend to cover the contents: i.e., coverage of Units by lectures, guest lectures, design exercises, solving numerical problems, demonstration of models, model preparation, or by assignments, etc.)


3. METHOD OF EVALUATION

- 3.1. Continuous Assessment Examinations (CAE 1, CAE 2)
- 3.2. Assignments / Seminars
- 3.3. Mini Projects
- 3.4. Quiz
- 3.5. Term End Examination
- 3.6. Others

4. List out any new topic(s) or any innovation you would like to introduce in teaching the subject in this Semester.

Signature of HOD
 Date:

Signature of Faculty
 Date:

	COURSE OBJECTIVES	2015-16
	GUIDELINES TO STUDY THE SUBJECT	Regulation: R12

FACULTY DETAILS:

Name of the Faculty: M.NAVEEN BABU

Designation: Asst.prof

Department:: CSE

Guidelines for Preparing the Course:

Course Description:

Computer Graphics is a study of the hardware and software principles of interactive raster graphics. Topics include an introduction to the basic concepts, 2-D and 3-D modeling and transformations, viewing transformations, projections, rendering techniques, graphical software packages and graphics systems. Students will use a standard computer graphics API to reinforce concepts and study fundamental computer graphics algorithms. Topics include an introduction to basic animation and function and animation language key frame systems.

Course Objectives:

1. Students will write program functions to implement visibility detection.
2. Students will write programs that demonstrate computer graphics animation.

Learning Outcomes:

1. Students will have an appreciation of the history and evolution of computer graphics, both hardware and software. Assessed by written homework assignment.
2. Students will have an understanding of 2D graphics and algorithms including: line drawing, polygon filling, clipping, and transformations. They will be able to implement these. Assessed by tests and programming assignments.
3. Students will understand the concepts of and techniques used in 3D computer graphics, including viewing transformations, hierarchical modeling, color, lighting and texture mapping. Students will be exposed to current computer graphics research areas. Assessed by tests, homework and programming assignments.
4. Students will be able to use a current graphics API (OpenGL). Assessed by programming assignments.
5. Students will be introduced to algorithms and techniques fundamental to 3D computer graphics and will understand the relationship between the 2D and 3D versions of such algorithms. Students will be able to reason about and apply these algorithms and techniques in new situations. Assessed by tests and programming assignments

		Regulation: R12
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FACULTY DETAILS:

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On completion of this Subject / Course the student shall be able to:

S.No.	Objectives	Outcomes
1	Student should be able to describe the general software architecture and graphics application	Achieved as per the CP
2.	Student shall be able to discuss hardware system architecture for computer graphics. This includes, but is not limited to: graphics pipeline, frame buffers, and graphic accelerators/co-processors	Achieved as per the CP
3.	Student Shall be able to use a current 3D graphics API (e.g., OpenGL or DirectX)	Achieved as per the CP
4.	Student shall be able to use the underlying algorithms, mathematical concepts, supporting computer graphics.	Achieved as per the CP
5.	Student shall be able to select among models for lighting/shading: Color, ambient light; distant and light with sources	Achieved as per the CP
6.	Student shall be able to use and select among current models for surfaces (e.g., geometric; polygonal; hierarchical; mesh; curves, splines)	Achieved as per the CP
7.	Student shall be able to design and implement model and viewing transformations, the graphics pipeline and an interactive render loop with a 3D graphics API	Achieved as per the CP
8.	Student shall able to design and implement models of surfaces, lights, sounds, and textures (with texture transformations) using a 3D graphics API	Achieved as per the CP
9.	Student shall able to discuss the application of computer graphics concepts in the development of computer games, information visualization, and business applications	Achieved as per the CP
10.	Student shall able to discuss future trends in computer graphics and quickly learn future computer graphics concepts and APIs.	Achieved as per the CP

Signature of Faculty
Date:

Note: For each of the OBJECTIVE indicate the appropriate OUTCOMES to be achieved.
 Kindly refer Page 16, to know the illustrative verbs that can be used to state the objectives.



COURSE OUTCOMES

2015-16

Regulation: R12

FACULTY DETAILS:

Name of the Faculty:: M.NAVEEN BABU
 Designation: Assistant professor
 Department:: CSE

The expected outcomes of the Course / Subject are:

S.No.	General Categories of Outcomes	Specific Outcomes of the Course
A.	An ability to apply knowledge of mathematics, science, and engineering	Have the clear idea regarding the applications of the computer graphics
B.	An ability to design and conduct experiments, as well as to analyze and interpret data	Design algorithms for different geometric shapes line, circle, ellipse...etc
C.	An ability to design a system, component, or process to meet desired needs within realistic Constraints such as economic, environmental, social, political, ethical, health and safety, Manufacturability and sustainability	Perform scan line polygon filling, boundary filling
D.	An ability to function on multi-disciplinary teams	Perform transformations (rotation, scaling, translation, shearing) on geometric objects
E.	An ability to identify, formulate, and solve engineering problems	Perform transformations (rotation, scaling, translation, shearing) on geometric objects
F.	An understanding of professional and ethical responsibility	Perform line clipping by different techniques against viewing window.
G.	An ability to communicate effectively	Perform line clipping by different techniques against viewing window.
H.	The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context	Perform polygon clipping against viewing window
I.	A recognition of the need for, and an ability to engage in life-long learning	Perform polygon clipping against viewing window
J.	A knowledge of contemporary issues	Understand the working of animation technique
K.	An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.	Understand the working of animation technique

Objectives – Outcome Relationship Matrix (Indicate the relationships by ☒ mark).

Objectives \ Outcomes	A	B	C	D	E	F	G	H	I	J	K
1.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



COURSE SCHEDULE

2015-16

Regulation: R12

FACULTY DETAILS:

Name of the Faculty:: M.NAVEEN BABU
Designation: Assistant professor
Department: CSE

The Schedule for the whole Course / Subject is:: CG

S. No.	Description	Duration (Date)		Total No. of Periods
		From	To	
1.	Unit-I Introduction. Application area of computer graphics	2/7/2013	16/7/2013	14
2.	Unit-II Output primitives:	17/7/2013	2/8/2013	10
3.	Unit-III 2-D Geometrical	3/8/2013	15/8/2013	07
4.	Unit-IV 2D Viewing:	16/8/2013	25/8/2013	07
5.	Unit-V 3-D objective representation:	3/9/2013	16/9/2013	10
6.	Unit VI: 3D Geometric Transformations:	16/9/2013	26/9/2013	08
7	Unit-VII:Visible surface detection methods:	26/9/2013	6/10/2013	08
8	Unit-VIII:Computer animation:	6/10/2013	26/10/2013	07

Total No. of Instructional periods available for the course: Hours / Periods 71

Suggested Text Books (RB)

TB1: "COMPUTER GRAPHICS C VERSION", DONALD HEARN AND M. PAULINE BAKER, PEARSON EDUCATION

TB2: "COMPUTER GRAPHICS PRINCIPLES & PRACTICE", SECOND EDITION IN C, FOLEY VAN DAM, FEINER AND HUGHES


Suggested / Reference Books (RB)

RB1: "PRINCIPLES OF COMPUTER GRAPHICS", SHALINI, GOVIL-PAI, SPRINGER

RB2: COMPUTER GRAPHICS, F.S HILL, S.M KELLEY, PHI

RB3: COMPUTER GRAPHICS, RAJESH K. MAURYA, WILEY INDIA

RB4: PRINCIPLES OF INTERACTIVE COMPUTER GRAPHICS-NEUMANN AND SPRULL

	SCHEDULE OF INSTRUCTIONS UNIT - I	2015-16
		Regulation: R12

FACULTY DETAILS:

Name of the Faculty:: M.NAVEEN BABU
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The Schedule for the whole Course / Subject is:: CG

Sl. No.	Date	No. of Periods	Topics / Sub - Topics	Objectives & Outcome Nos.	References (Text Book, Journal...) Page No ___ to ___
1	2/7/2013	1	Introduction to Computer Graphics		TB 1,Pg No 24 to54
2	3/7/13	1	Application areas of Computer Graphics		TB 1,Pg No 24 to54
3	4/7/13	1	Overview of CG		TB1,Pg No 56
4	5/7/13	2	CRT,Video display devices		TB 1,Pg No 57 to 68
5	7/7/13	1	Raster scan systems, Random scan systems		TB 1,Pg No 73 to 76
6	8/7/13	1	Display controller and Frame Buffer		TB 1,Pg No 75 to 80
7	10/7/13	2	Graphics Monitor		TB 1,Pg No 75 to 80
8	12/7/13	2	Input devices		TB 1,Pg No 80 to 95
9	15/7/13	1	Work Station		TB 1,Pg No to 99
10	16/7/2013	2	Overview of Raster scan ,CRT,Input devices		

Signature of Faculty
Date

- Note: 1. ENSURE THAT ALL TOPICS SPECIFIED IN THE COURSE ARE MENTIONED.
 2. ADDITIONAL TOPICS COVERED, IF ANY, MAY ALSO BE SPECIFIED **BOLDLY**.
 3. MENTION THE CORRESPONDING COURSE OBJECTIVE AND OUT COME NUMBERS AGAINST EACH TOPIC.



SCHEDULE OF INSTRUCTIONS

2015-16

UNIT - II

Regulation: R12

FACULTY DETAILS:

Name of the Faculty:: M.NAVEEN BABU
Designation: Assistant professor
Department:: CSE

The Schedule for the whole Course / Subject is:: CG


Sl. No.	Date	No. of Periods	Topics / Sub - Topics	Objectives & Outcome Nos.	References (Text Book, Journal...) Page No ___ to ___
11	17/7/2013	1	Introduction		TB 1
12	20/7/13	1	Points and Lines		TB 1,Pg No 104
13	21/7/13	1	Line drawing algorithm,DDA		TB 1,Pg No 106 to 107
14	22/7/13	1	Bressenhan's Line drawing algorithm		TB 1,Pg No 108 to 112
15	23/7/13	1	DDA & Bressenhan's examples		TB1,Pg No 108 to112
16	25/7/13	1	Midpoint circle algorithm, examples		TB 1,Pg No 118
17	27/7/13	1	Ellipse circle algorithm with examples		TB 1,Pg No 112
18	30/7/13	1	Filled area polygon with scan line polygon		TB 1,Pg No 137 to 145
19	1/8/13	1	Boundary fill algorithm		TB 1,Pg No 147
20	2/8/2013	1	Flood fill algorithm with examples		TB 1,Pg No 150 to 151

Signature of Faculty
Date

Note: 1. ENSURE THAT ALL TOPICS SPECIFIED IN THE COURSE ARE MENTIONED.

2. ADDITIONAL TOPICS COVERED, IF ANY, MAY ALSO BE SPECIFIED **BOLDLY**.

MENTION THE CORRESPONDING COURSE OBJECTIVE AND OUT COME NUMBERS AGAINST EACH TOPIC.

	SCHEDULE OF INSTRUCTIONS UNIT - III	2015-16
		Regulation: R12

FACULTY DETAILS:

Name of the Faculty:: M.NAVEEN BABU

Designation: Assistant professor

Department: CSE

The Schedule for the whole Course / Subject is:: CG

Sl. No.	Date	No. of Periods	Topics / Sub - Topics	Objectives & Outcome Nos.	References (Text Book, Journal...) Page No ___ to ___
21	3/8/2013	1	Introduction to translation scanning		TB 1,Pg No 204
22	4/8/13	1	Rotation, Reflection and Shear transformation		TB 1,Pg No 200 to 204
23	7/8/13	1	Matrix representation and homogeneous coordinates		TB 1,Pg No 208
24	9/8/13	1	Composition Transformations with examples		TB 1,Pg No 211 to 215
25	12/8/13	1	Composition Transformations with examples		TB 1,Pg No 211 to 215
26	13/8/13	1	Transformation between coordinates and systems		TB 1,Pg No 225 to 230
27	15/8/2013	1	Other transformations with examples		


Signature of Faculty

Date

Note: 1. ENSURE THAT ALL TOPICS SPECIFIED IN THE COURSE ARE MENTIONED.

2. ADDITIONAL TOPICS COVERED, IF ANY, MAY ALSO BE SPECIFIED **BOLDLY**.

MENTION THE CORRESPONDING COURSE OBJECTIVE AND OUT COME NUMBERS AGAINST EACH TOPIC.

	SCHEDULE OF INSTRUCTIONS UNIT - IV	2015-16
		Regulation: R12

FACULTY DETAILS:

Name of the Faculty:: M.NAVEEN BABU

Designation: Assistant professor

Department: CSE

The Schedule for the whole Course / Subject is:: CG

Sl. No.	Date	No. of Periods	Topics / Sub - Topics	Objectives & Outcome Nos.	References (Text Book, Journal...) Page No ___ to ___
28	16/8/13	1	Introduction to 2D-Viewing		TB 1,Pg No 237
29	17/8/13	1	The viewing pipeline		
30	20/8/13	1	Viewing coordinates reference frame		TB 1,Pg No 239 to 257
31	21/8/13	1	Window to view port coordinates transformation		TB 1,Pg No 247to 257
32	23/8/13	1	Viewing function		TB 1,Pg No 242
33	24/8/13	1	Clipping-Cohen suther land And curus back line clipping algorithm		TB 1,Pg No 258
34	25/8/2013	1	Sutherland hodgeman polygon clipping algorithm		TB 1.pg 260 to265


Signature of Faculty

Date

Note: 1. ENSURE THAT ALL TOPICS SPECIFIED IN THE COURSE ARE MENTIONED.

2. ADDITIONAL TOPICS COVERED, IF ANY, MAY ALSO BE SPECIFIED **BOLDLY**.

MENTION THE CORRESPONDING COURSE OBJECTIVE AND OUT COME NUMBERS AGAINST EACH TOPIC.

	SCHEDULE OF INSTRUCTIONS UNIT - V	2015-16
		Regulation: R12

FACULTY DETAILS:

Name of the Faculty:: M.NAVEEN BABU

Designation: Assistant professor

Department: CSE

The Schedule for the whole Course / Subject is:: CG

Sl. No.	Date	No. of Periods	Topics / Sub - Topics	Objectives & Outcome Nos.	References (Text Book, Journal...) Page No ___ to ___
36	3/9/2013	1	Polygon Surfaces,Querdric surfaces		TB 1,Pg No 325 to 333
37	5/9/2013	1	Spline Representation		TB 1,Pg No 335 to 339
38	7/9/2013	1	Cubic spline interpolation,Hermite interpolation		TB 1,Pg No 340 to 342
39	9/9/2013	1	Bezier curve and surfaces		TB 1,Pg No 347 to 353
40	13/9/2013	1	B-spline curve and surfaces		TB 1,Pg No 354 to 364
41	14/9/2013	1	Basic illumination models		TB 1,Pg No 517 to 531
42	16/9/2013	1	Polygon-Rendering method		TB 1,Pg No 542 to 546


Signature of Faculty

Date

Note: 1. ENSURE THAT ALL TOPICS SPECIFIED IN THE COURSE ARE MENTIONED.

2. ADDITIONAL TOPICS COVERED, IF ANY, MAY ALSO BE SPECIFIED **BOLDLY**.

MENTION THE CORRESPONDING COURSE OBJECTIVE AND OUT COME NUMBERS AGAINST EACH TOPIC.

	SCHEDULE OF INSTRUCTIONS UNIT - VI	2015-16
		Regulation: R12

FACULTY DETAILS:

Name of the Faculty:: M.NAVEEN BABU

Designation: Assistant professor

Department: CSE

The Schedule for the whole Course / Subject is:: CG

Sl. No.	Date	No. of Periods	Topics / Sub - Topics	Objectives & Outcome Nos.	References (Text Book, Journal...) Page No ___ to ___
1	16/9/13	1	Visible surface detection method classifications		TB-1 pg no490
2	17/9/13	2	Back-Face detection		TB-1 Pg no 491
3	20/9/13	1	Depth buffer,scan-line		TB-1,pg no 492 to 496
4	22/9/13	1	Depth Sorting		TB-1,pg-498
5	23/9/13	1	BSp-tree methods		TB-1 pg no 501
6	26/9/13	1	Area sub division and octree methods		TB-1 pg no502 to 505


Signature of Faculty

Date

Note: 1. ENSURE THAT ALL TOPICS SPECIFIED IN THE COURSE ARE MENTIONED.

2. ADDITIONAL TOPICS COVERED, IF ANY, MAY ALSO BE SPECIFIED **BOLDLY**.

MENTION THE CORRESPONDING COURSE OBJECTIVE AND OUT COME NUMBERS AGAINST EACH TOPIC.

	SCHEDULE OF INSTRUCTIONS UNIT - VII	2015-16
		Regulation: R12

FACULTY DETAILS:

Name of the Faculty:: M.NAVEEN BABU

Designation: Assistant professor

Department: CSE

The Schedule for the whole Course / Subject is:: CG


Sl. No.	Date	No. of Periods	Topics / Sub - Topics	Objectives & Outcome Nos.	References (Text Book, Journal...) Page No ___ to ___
1	26/9/13	1	Translation ,Rotation,Scaling		TB-1
2	28/9/2013	1	Reflection and shear transformation		TB-1
3	29/9/13	1	Composite transformation		TB-1
4	2/10/13	1	3D viewing ,viewing pipeline		TB-1
5	3/10/13	1	Viewing coordinates		TB-1
	4/10/13	1	Viewing volume and general projection		TB-1
6	5/10/13	1	Transformation		TB-1
7	6/10/13	2	Clipping and Examples		TB-1

Signature of Faculty
Date

Note: 1. ENSURE THAT ALL TOPICS SPECIFIED IN THE COURSE ARE MENTIONED.

2. ADDITIONAL TOPICS COVERED, IF ANY, MAY ALSO BE SPECIFIED **BOLDLY**.

MENTION THE CORRESPONDING COURSE OBJECTIVE AND OUT COME NUMBERS AGAINST EACH TOPIC.

	SCHEDULE OF INSTRUCTIONS UNIT - VIII	2015-16
		Regulation: R12

FACULTY DETAILS:

Name of the Faculty:: M.NAVEEN BABU

Designation: Assistant professor

Department: CSE

The Schedule for the whole Course / Subject is::

Sl. No.	Date	No. of Periods	Topics / Sub - Topics	Objectives & Outcome Nos.	References (Text Book, Journal...) Page No ___ to ___
1	6/10/2013	1	Computer animation introduction		TB-1 Pg no 604
2	14/10/13	1	Design of animation sequence		TB-1 Pg no 606
3	19/10/13	1	General computer animation functions		TB-1
4	22/10/13	1	Raster animations examples		TB-1
5	24/10/13	1	Computer animation languages		TB-1
6	26/10/13	2	Key frame systems, motion specification		TB-1 pg no 606 to 610

Signature of Faculty

Date

Note: 1. ENSURE THAT ALL TOPICS SPECIFIED IN THE COURSE ARE MENTIONED.

2. ADDITIONAL TOPICS COVERED, IF ANY, MAY ALSO BE SPECIFIED **BOLDLY**.

MENTION THE CORRESPONDING COURSE OBJECTIVE AND OUT COME NUMBERS AGAINST EACH TOPIC.

	COURSE COMPLETION STATUS	2015-16
		Regulation: R12

FACULTY DETAILS:

Name of the Faculty:: M.NAVEEN BABU

Subject:: Computer Graphics

Subject Code

Department:: IT

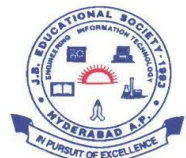
Actual Date of Completion & Remarks, if any

Units	Remarks	Nos. of Objectives Achieved
Unit 1	Covered the syllabus as the per the course plan.	As Per Cp
Unit 2	Covered the syllabus as the per the course plan.	As Per Cp
Unit 3	Covered the syllabus as the per the course plan.	As Per Cp
Unit 4	Covered the syllabus as the per the course plan.	As Per Cp
Unit 5	Covered the syllabus as the per the course plan.	As Per Cp
Unit 6	Covered the syllabus as the per the course plan.	As Per Cp
Unit 7	Covered the syllabus as the per the course plan.	As Per Cp
Unit 8	Covered the syllabus as the per the course plan.	As Per Cp

Signature of Dean of School
Date:

Signature of Faculty
Date:

NOTE: AFTER THE COMPLETION OF EACH UNIT MENTION THE NUMBER OF OBJECTIVES ACHIEVED.



TUTORIAL SHEETS - I

2015-16

Regulation: R12

FACULTY DETAILS:

Name of the Faculty:: M.NAVEEN BABU
Designation: Assistant professor
Department:: CSE
The Schedule for the whole Course / Subject is:: CG

Date:

This Tutorial corresponds to Unit Nos.CO

Time:

Q1.Explain the video display devices?

Q2.Explain the input devices and computer applications?

Q3.Explain DDA algorithm with Example?

Q4.Explain midpoint circle algorithm with an example?

Q5.Explain ellipse algorithm and with an example?

Please write the Questions / Problems / Exercises which you would like to give to the students and also mention the objectives to which these questions / Problems are related.

Signature of Dean of School
Date:

Signature of Faculty
Date:



TUTORIAL SHEETS - II

2015-16

Regulation: R12

FACULTY DETAILS:

Name of the Faculty:: M.NAVEEN BABU
Designation: Assistant professor
Department:: CSE
The Schedule for the whole Course / Subject is:: CG

Date:

This Tutorial corresponds to Unit Nos.CO(3,4,5 Units)

Time:

Q1.Explain the composite transformations with an examples?

Q2.Explain filled area primitives with an example?

Q3.Explain window to view port coordinate transformations with an examples?

Q4.Explain Cohen-Sutherland and Cyrus-Beck line algorithm with example?

Q5.Explain the B-Spline and Bezier curve with an example?

Please write the Questions / Problems / Exercises which you would like to give to the students and also mention the objectives to which these questions / Problems are related.

Signature of Dean of School
Date:

Signature of Faculty
Date:



TUTORIAL SHEETS - III

2015-16

Regulation: R12

FACULTY DETAILS:

Name of the Faculty:: M.NAVEEN BABU
Designation: Assistant professor
Department:: CSE

Date:

This Tutorial corresponds to Unit Nos.CG (6,7,8)

Time:

Q1.Explain Basic Illumination Models and Polygon rendering methods?

Q2.Explain Back-Face detection and depth sorting method?

Q3.Explain 3D viewing coordinates and viewing volume and general projection?

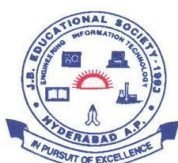
Q4.Explain computer animation and application?

Q5.Explain computer animation languages and key frame systems?

Please write the Questions / Problems / Exercises which you would like to give to the students and also mention the objectives to which these questions / Problems are related.

Signature of Dean of School
Date:

Signature of Faculty
Date:



ILLUSTRATIVE VERBS FOR STATING INSTRUCTIONAL OBJECTIVES

2015-16

Regulation: R12

These verbs can also be used while framing questions for Continuous Assessment Examinations as well as for End – Semester (final) Examinations.

ILLUSTRATIVE VERBS FOR STATING GENERAL OBJECTIVES

Know

Comprehend

Understand

Apply

Analyze

Design

Generate

Evaluate

ILLUSTRATIVE VERBS FOR STATING SPECIFIC OBJECTIVES:

A. Cognitive Domain

1	2	3	4	5	6
Knowledge	Comprehension Understanding	Application of knowledge & comprehension	Analysis of whole w.r.t. its constituents	Synthesis combination of ideas/constituents	Evaluation judgement

Define	Convert	Change	Breakdown	Categorize	Appraise
Identify	Defend	Compute	Differentiate	Combine	Compare
Label	Describe (a procedure)	Demonstrate	Discriminate	Compile	Conclude
List	Distinguish	Deduce	Distinguish	Compose	Contrast
Match	Distinguish	Manipulate	Separate	Create	Criticize
Reproduce	Estimate	Modify	Subdivide	Devise	Justify
Select	Explain why/how	Predict		Design	Interpret
State	Extend	Prepare		Generate	Support
	Generalize	Relate		Organize	
	Give examples	Show		Plan	
	Illustrate	Solve		Rearrange	
	Infer			Reconstruct	
	Summarize			Reorganize	
				Revise	

B. Affective Domain

Adhere
Assist
Attend
Change
Develop
Help
Influence
Initiate

Resolve
Select
Serve
Share

C. Psychomotor Domain (skill development)


Bend
Calibrate
Compress
Conduct
Connect
Convert
Decrease
Demonstrate

Dissect
Draw
Extend
Feed
File
Grow
Handle
Increase

Insert
Keep
Elongate
Limit
Manipulate
Move precisely
Operate
Paint

Perform
Prepare
Remove
Replace
Report
Reset
Run
Set

Straighten
Strengthen
Time
Transfer
Type
Weigh

	LESSON PLAN Unit-1	2015-16
		Regulation: R12

Name of the Faculty: M.NAVEEN BABU

Subject Computer Graphics

Subject Code 56054

Unit I

INSTRUCTIONAL OBJECTIVES:

Session No	Topics to be covered	Time	Ref	Teaching Method
1	Introduction to Computer Graphics	10/12/13	TB 1,Pg No 24 to54	Lecture method
2	Application areas of Computer Graphics	11/12/13	TB 1,Pg No 24 to54	
3	Overview of CG	12/12/13	TB1,Pg No 56	
4	CRT,Video display devices	13/12/13	TB 1,Pg No 57 to 68	
5	Raster scan systems, Random scan systems	14/12/13	TB 1,Pg No 73 to 76	
6	Display controller and Frame Buffer	16/12/13	TB 1,Pg No 75 to 80	
7	Graphics Monitor	18/12/13	TB 1,Pg No 75 to 80	
8	Input devices	19/12/13	TB 1,Pg No 80 to 95	
9	Work Station	20/12/13	TB 1,Pg No to 99	
10	Overview of Raster scan ,CRT,Input devices	21/12/13		

On completion of this lesson the student shall be able to(Outcomes)

1.Student shall be able to understand the how the picture is display in the monitors

2 student shall be able to understand the raster scan system and random scan systems.

3.Student shall be able to understand the what are the software are used in the computer graphics packages



ASSIGNMENT
Unit-I

2015-16

Regulation: R12

Assignment / Questions

1. What are the features of Inkjet printers?
2. What do you mean by scan conversion?
3. List out the merits and demerits of DVST?
4. Define Random scan/Raster scan displays?
5. What is the difference between impact and non-impact printers?

Signature of Faculty

Note: Mention for each question the relevant objectives and outcomes.



LESSON PLAN
Unit-II

2015-16

Regulation: R12

Name of the Faculty: M.NAVEEN BABU

Subject Computer Graphics
Unit II

Subject Code 56054

INSTRUCTIONAL OBJECTIVES:

Session No	Topics to be covered	Time	Ref	Teaching Method
1	Introduction	23/12/13	TB 1	
2	Points and Lines	26/12/13	TB 1,Pg No 104	
3	Line drawing algorithm,DDA	27/12/13	TB 1,Pg No 106 to 107	
4	Bressenhan's Line drawing algorithm	28/12/13	TB 1,Pg No 108 to 112	
5	DDA & Bressenhan's examples	30/12/13	TB1,Pg No 108 to112	
6	Midpoint circle algorithm, examples	1/1/14	TB 1,Pg No 118	
7	Ellipse circle algorithm with examples	2/1/14	TB 1,Pg No 112	
8	Filled area polygon with scan line polygon	3/1/14	TB 1,Pg No 137 to 145	
9	Boundary fill algorithm	4/1/14	TB 1,Pg No 147	
10		6/1/14	TB 1,Pg No 150 to 151	

On completion of this lesson the student shall be able to

1. Student shall be able to implement the line and midpoint algorithm in C&C++ programs
2. Student shall be able to implement the scan line algorithm in C++
3. Student shall be able to understand the how to fill a colour in the pictures using flood fill algorithms
- 4 Student shall be able to understand the filling of colour in an image using these algorithms



**ASSIGNMENT
Unit-II**

2015-16


Regulation: R12

Assignment / Questions

1. What are the various attributes of a line?
2. What is Colour Look up table? Explain?
3. What is tiling patterns? and explain briefly?
4. Explain the midpoint circle algorithm with an example?
5. Explain the boundary fill algorithm with an example?

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Note: Mention for each question the relevant objectives and outcomes.

	LESSON PLAN Unit-III	2015-16
		Regulation: R12

Name of the Faculty: M.NAVEEN BABU

Subject Computer Graphics

Subject Code 56054

Unit III

INSTRUCTIONAL OBJECTIVES:

Session No	Topics to be covered	Time	Ref	Teaching Method
1	Introduction to translation scanning	8/1/14	TB 1,Pg No 204	
2	Rotation, Reflection and Shear transformation	9/1/14	TB 1,Pg No 200 to 204	
3	Matrix representation and homogeneous coordinates	10/1/14	TB 1,Pg No 208	
4	Composition Transformations with examples	27/1/14	TB 1,Pg No 211 to 215	
5	Composition Transformations with examples	29/1/14	TB 1,Pg No 211 to 215	
6	Transformation between coordinates and systems	30/1/14	TB 1,Pg No 225 to 230	
7	Other transformations with examples	31/2/14	TB_1	

On completion of this lesson the student shall be able to(Outcomes)

1. Student shall be able to understand the how an image transformed one position to another positions
2. Student shall be able understand the matrix representation and composition Transformations.



ASSIGNMENT
Unit-III

2015-16


Regulation: R12

Assignment / Questions

1. Explain Matrix representation and homogeneous coordinates with an example?
2. Explain Rotation, Reflection and Shear transformation with an examples?
3. Explain Composition Transformations with examples?

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Note: Mention for each question the relevant objectives and outcomes.

	LESSON PLAN Unit-IV	2015-16
		Regulation: R12

Name of the Faculty: M.NAVEEN BABU

Subject Computer Graphics

Subject Code 56054


Unit IV

INSTRUCTIONAL OBJECTIVES:

Session No	Topics to be covered	Time	Ref	Teaching Method
1	Introduction to 2D-Viewing	1/2/14	TB 1,Pg No 237	
2	The viewing pipeline	3/2/14	TB-1 pg no236	
3	Viewing coordinates reference frame	5/2/14	TB 1,Pg No 239 to 257	
4	Window to view port coordinates transformation	6/2/14	TB 1,Pg No 247to 257	
5	Viewing function	7/2/14	TB 1,Pg No 242	
6	Clipping-Cohen suther land And curus back line clipping algorithm	10/2/14	TB 1,Pg No 258	
7	Sutherland hodgeman polygon clipping algorithm	17/2/14	TB 1,pg 260 to265	
8	Introduction to 2D-Viewing	1/2/14	TB 1,Pg No 237	

On completion of this lesson the student shall be able to (Outcomes)

1. Student shall be able to understand the window to viewport
2. Student shall be able to understand the clipping methods


	ASSIGNMENT Unit-IV	2015-16
		Regulation: R12

Assignment / Questions

1. Explain Window to view port coordinates transformation with an example?
2. Explain The viewing pipeline and view functions with an example?
3. Explain Cohen sutherland algorithm with an example?

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Note: Mention for each question the relevant objectives and outcomes.

	LESSON PLAN Unit-V	2015-16
		Regulation: R12

Name of the Faculty: M.NAVEEN BABU

Subject Computer Graphics

Subject Code 56054


Unit V

INSTRUCTIONAL OBJECTIVES:

Session No	Topics to be covered	Time	Ref	Teaching Method
	Polygon Surfaces,Querdric surfaces	19/2/14	TB 1,Pg No 325 to 333	
	Spline Representation	20/2/14	TB 1,Pg No 335 to 339	
	Cubic spline interpolation,Hermite interpolation	21/2/14	TB 1,Pg No 340 to 342	
	Bezier curve and surfaces	22/2/14	TB 1,Pg No 347 to 353	
	B-spline curve and surfaces	24/2/14	TB 1,Pg No 354 to 364	
	Basic illumination models	26/2/14 to 28/2/14	TB 1,Pg No 517 to 531	
	Polygon-Rendering method	1/3/14	TB 1,Pg No 542 to 546	

On completion of this lesson the student shall be able to (Outcomes)

1.Student Shall be able to understand the polygon surfaces and Bezier curves

	ASSIGNMENT Unit-V	2015-16
		Regulation: R12

Assignment / Questions

1. Explain Bezier curve and surfaces and B-spline curve and surfaces?
2. Explain polygon surfaces with an example
3. Explain Basic illumination models?

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Note: Mention for each question the relevant objectives and outcomes.



LESSON PLAN
Unit-VI

2015-16

Regulation: R12

Name of the Faculty: M.NAVEEN BABU

Subject Computer Graphics

Subject Code 56054


Unit VI

INSTRUCTIONAL OBJECTIVES:

Session No	Topics to be covered	Time	Ref	Teaching Method
	Visible surface detection method classifications	6/8/14	TB-1 pg no490	
	Back-Face detection	7/3,8/3	TB-1 Pg no 491	
	Depth buffer,scan-line	10/3	TB-1,pg no 492 to 496	
	Depth Sorting	12/3	TB-1,pg-498	
	BSp-tree methods	13/3	TB-1 pg no 501	
	Area sub division and octree methods	14/3	TB-1 pg no502 to 505	
	Visible surface detection method classifications	6/8/14	TB-1 pg no490	

On completion of this lesson the student shall be able to (Outcomes)

- 1.
- 2.
- 3.
- 4.

	ASSIGNMENT Unit-VI	2015-16
		Regulation: R12

Assignment / Questions

1. Explain Back-Face detection and Depth buffer, scan-line ?
2. Explain BSP-tree methods and Area sub division and octree methods? Explain
3. Visible surface detection method classifications?

Signature of Faculty

Note: Mention for each question the relevant objectives and outcomes.



LESSON PLAN
Unit-VII

2015-16

Regulation: R12

Name of the Faculty: M.NAVEEN BABU

Subject Computer Graphics

Subject Code 56054


Unit VII

INSTRUCTIONAL OBJECTIVES:

Session No	Topics to be covered	Time	Ref	Teaching Method
	Translation ,Rotation,Scaling	15/3	TB-1	
	Reflection and shear transformation	19/3	TB-1	
	Composite transformation	20/3	TB-1	
	3D viewing ,viewing pipeline	21/3	TB-1	
	Viewing coordinates	22/3	TB-1	
	Viewing volume and general projection	24/3	TB-1	
	Transformation	26/3	TB-1	
	Clipping and Examples	27/3 to28/ 3	TB-1	

On completion of this lesson the student shall be able to

- 1.
- 2.
- 3.
- 4


	ASSIGNMENT Unit-VII	2015-16
		Regulation: R12

Assignment / Questions

1. Explain Translation ,rotation reflection and shear transformation with a suitable examples?
2. Explain Viewing volume and general projection?
3. Explain clipping examples?

Signature of Faculty

Note: Mention for each question the relevant objectives and outcomes.

	LESSON PLAN Unit-VIII	2015-16
		Regulation: R12

Name of the Faculty: M.NAVEEN BABU

Subject Computer Graphics

Subject Code 56054

Unit VIII

INSTRUCTIONAL OBJECTIVES:

Session No	Topics to be covered	Time	Ref	Teaching Method
	Computer animation introduction	2/4	TB-1 Pg no 604	
	Design of animation sequence	3/4	TB-1 Pg no 606	
	General computer animation functions	4/4	TB-1	
	Raster animations examples	5/4	TB-1	
	Computer animation languages	7/4	TB-1	
	Key frame systems, motion specification	9/4	TB-1 pg no 606 to 610	

On completion of this lesson the student shall be able to

- 1.
- 2.
- 3.
- 4.



ASSIGNMENT
Unit-VIII

2015-16

Regulation: R12

Assignment / Questions

1. Explain Computer animation and applications?
2. Explain General computer animation functions?
3. Explain Raster animations examples ?
4. Explain Computer animation languages and key frame systems?

Signature of Faculty

Note: Mention for each question the relevant objectives and outcomes.